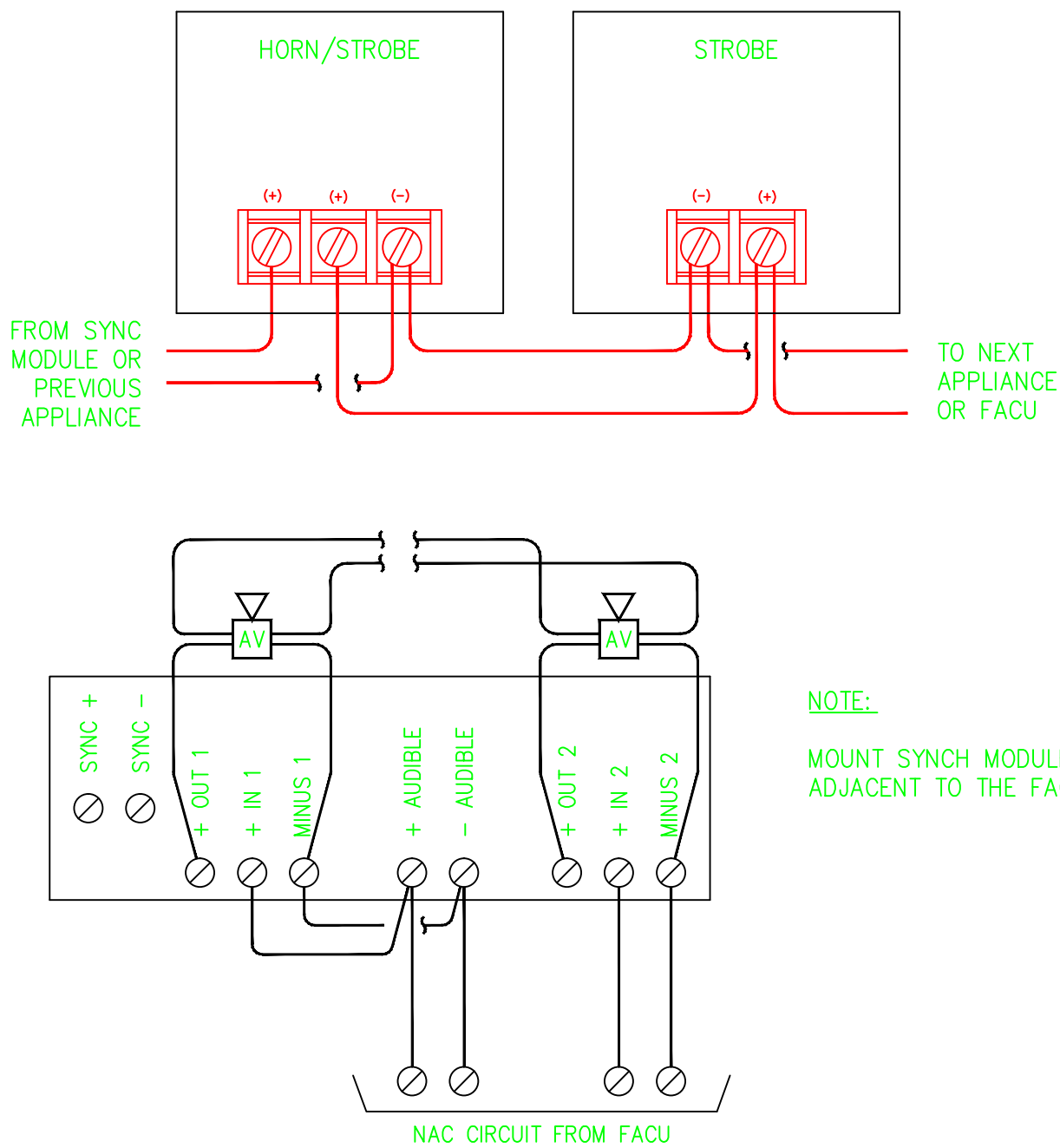


1 TYPICAL DEVICE ARRANGEMENT  
FA0.1 SCALE: NONE



3 TYPICAL APPLIANCE WIRING DETAIL  
FA0.1 SCALE: NONE

## SEQUENCE OF OPERATIONS

### SYSTEM EVENT

SYSTEM EVENT	ANNUNCIATE EVENT AT FACP	OPERATE NOTIFICATION APPLIANCES	FIRE SIGNAL TO LBNL RECEIVER	SUPERVISORY SIGNAL TO LBNL RECEIVER	TROUBLE SIGNAL TO LBNL RECEIVER
HEAT DETECTOR ALARM	●	●	●		
WATERFLOW SWITCH ALARM	●	●	●		
FIRE CALL BOX ALARM	●	●	●		
VALVE SUPERVISION ALARM	●			●	
SYSTEM FAULT	●				●

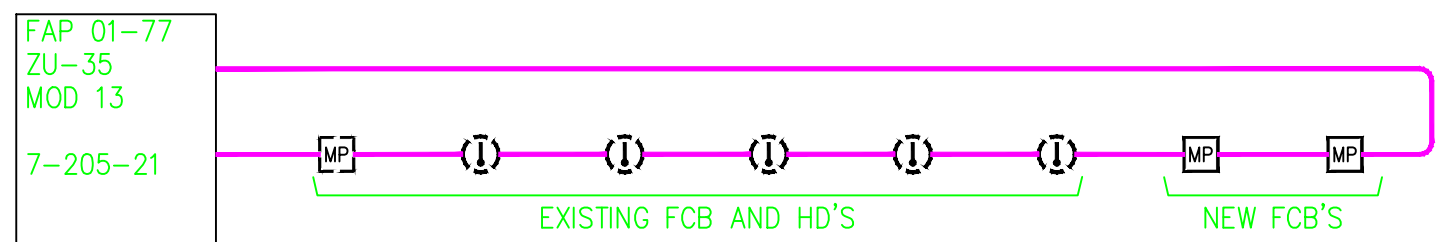
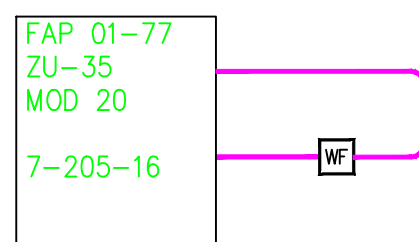
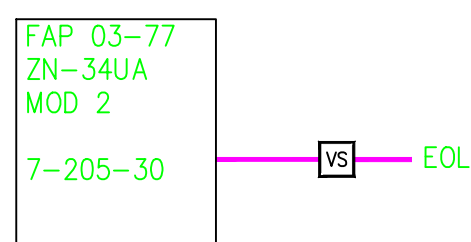
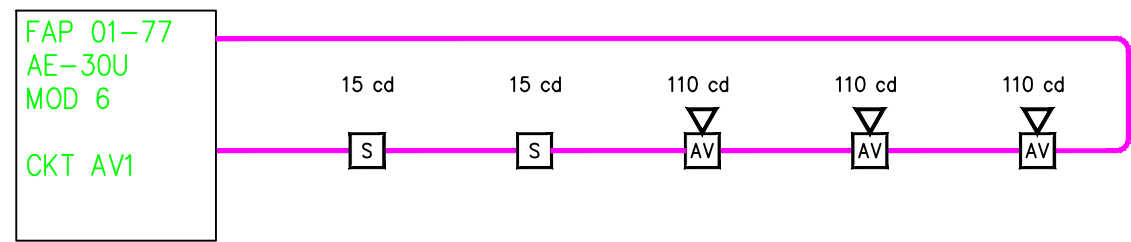
5 CAUSE AND EFFECT FUNCTION CHART  
FA0.1 SCALE: NONE

## GENERAL NOTES:

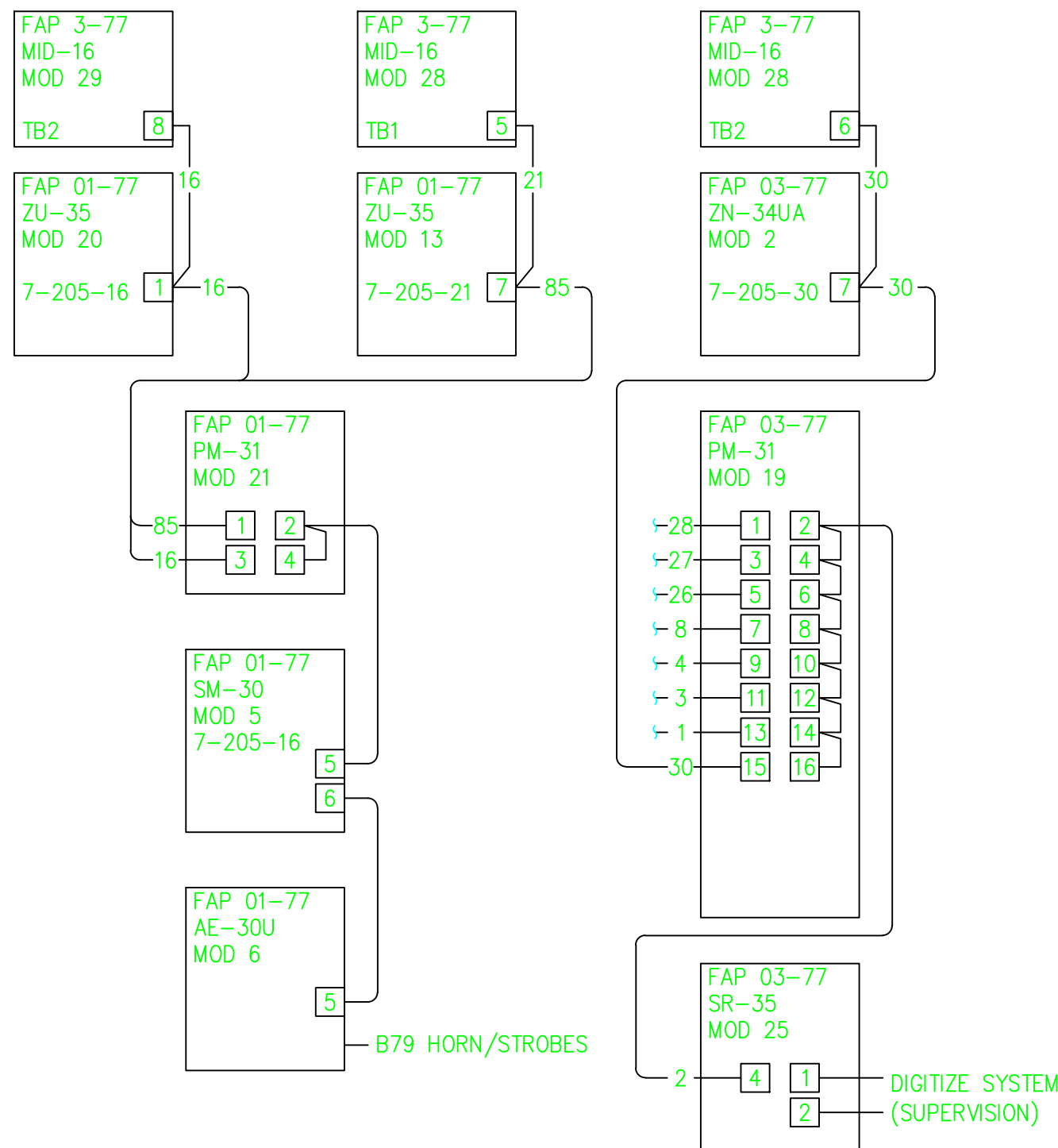
- IN GENERAL, WORK SHALL INCLUDE, BUT NOT BE LIMITED TO THE DETAILED DESIGN, FABRICATION, PROCUREMENT, AND INSTALLATION OF THE COMPLETE FIRE PROTECTION SYSTEMS ADDITIONS AND MODIFICATIONS AS INDICATED ON THE CONTRACT DRAWINGS, INCLUDING:
  - ALL PENETRATIONS THROUGH WALLS, FLOORS AND CEILINGS NECESSARY FOR THE INSTALLATION OF THE FIRE PROTECTION SYSTEMS INCLUDING THE INSTALLATION OF APPROVED FIRESTOP ASSEMBLIES NECESSARY TO MAINTAIN THE DESIGNED FIRE RESISTANCE RATING OF THE WALL, CEILING, OR FLOOR ASSEMBLY.
  - CONNECTIONS TO THE EXISTING FIRE ALARM SYSTEM AS INDICATED.
  - SYSTEMS AND DEVICE TESTING.
  - ALL NECESSARY PERMITS.
- THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND IMPLEMENTING ALL SAFETY PROGRAMS AND PROCEDURES FOR THIS PROJECT AND SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL SAFETY AND HEALTH REGULATIONS.
- THE CONTRACT DRAWINGS ARE DIAGRAMMATIC ONLY. THE SUBCONTRACTOR SHALL DETERMINE THE ACTUAL MEASUREMENTS AND MAKE ANY AND ALL SUCH LENGTH AND OFFSET ADJUSTMENTS AS MAY BE NECESSARY TO COMPLETE THE INSTALLATION AT NO CHANGE IN THE CONTRACT PRICE. THE DRAWINGS ARE NOT INTENDED TO RELIEVE THE SUBCONTRACTOR OF ANY RESPONSIBILITY FOR AVOIDING CONFLICTS OR OBSTRUCTIONS, OR FOR INSTALLING THE NUMBER OF SPRINKLERS AND SUPPLY PIPING AS REQUIRED TO PROVIDE COMPLETE PROTECTION OF THE DESIGNATED AREAS IN ACCORDANCE WITH THE REQUIREMENTS OF THE REFERENCED STANDARDS AND THESE SPECIFICATIONS. WRITTEN APPROVAL SHALL BE OBTAINED FROM THE UNIVERSITY'S REPRESENTATIVE PRIOR TO MAKING ANY MAJOR DEVIATIONS FROM THE ARRANGEMENT AND LAYOUT SHOWN ON THE DRAWINGS.
- ALL EQUIPMENT SHALL BE NEW, AND APPROVED AND/OR LISTED BY UNDERWRITERS' LABORATORIES OR FACTORY MUTUAL.
- SYSTEM, EQUIPMENT, INSTALLATION, AND MATERIALS AND METHODS USED SHALL COMPLY WITH THE FOLLOWING:
  - THE REQUIREMENTS OF THE LAWRENCE BERKELEY NATIONAL LABORATORY.
  - NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 72 NATIONAL FIRE ALARM CODE CURRENT EDITION.
  - CALIFORNIA BUILDING AND FIRE CODES.
  - MANUFACTURER'S RECOMMENDATIONS AND GUIDELINES.
- ALL NEW CONDUIT SHALL BE MINIMUM 3/4 INCH DIAMETER.

## LEGEND:

- 110 cd  
AV NEW WALL MOUNTED HORN/STROBE, CANDELA AS NOTED
- 15 cd  
S NEW WALL MOUNTED STROBE, CANDELA AS NOTED
- WF NEW WATERFLOW SWITCH
- VS NEW VALVE POSITION SUPERVISORY SWITCH
- MF NEW MANUAL FIRE CALL BOX
- LP EXISTING WALL MOUNTED FIRE ALARM BELL
- MF EXISTING MANUAL FIRE CALL BOX
- ID EXISTING HEAT DETECTOR
- WF EXISTING WATERFLOW SWITCH
- VS EXISTING VALVE POSITION SUPERVISORY SWITCH
- NEW 3/4 INCH CONDUIT, CONTAINING IDENTIFIED CIRCUITS



2 RISER DIAGRAMS  
FA0.1 SCALE: NONE



4 PANEL WIRING SCHEMATIC  
FA0.1 SCALE: NONE

## NOTIFICATION APPLIANCE CIRCUIT POWER REQUIREMENTS

DESCRIPTION	CURRENT PER APPLIANCE	# OF APPLIANCES
COOPER WHELOCK EXCEEDER SERIES WALL STROBE 15 cd	0.057	1
COOPER WHELOCK EXCEEDER SERIES CEILING STROBE 15 cd	0.061	0
COOPER WHELOCK EXCEEDER SERIES WALL STROBE 30 cd	0.085	0
COOPER WHELOCK EXCEEDER SERIES CEILING STROBE 30 cd	0.085	0
COOPER WHELOCK EXCEEDER SERIES WALL STROBE 75 cd	0.135	0
COOPER WHELOCK EXCEEDER SERIES CEILING STROBE 75 cd	0.135	0
COOPER WHELOCK EXCEEDER SERIES WALL STROBE 110 cd	0.182	3
COOPER WHELOCK EXCEEDER SERIES CEILING STROBE 95 cd	0.163	0
TOTAL CIRCUIT CURRENT		0.603

THE FOLLOWING NOTIFICATION APPLIANCES AND THEIR POWER DEMANDS WERE USED IN THE DESIGN:

- COOPER NOTIFICATION, WHELOCK EXCEEDER SERIES STROBES; 15CD (0.057 AMP), 30CD (0.085 AMP), 75CD (0.135 AMP) & 110CD (0.182 AMP) WALL MOUNTED STROBE; RATED 16 TO 33 AMP.
- COOPER NOTIFICATION, WHELOCK EXCEEDER SERIES STROBES; 15CD (0.061 AMP), 30CD (0.085 AMP), 75CD (0.135 AMP) & 95CD (0.163 AMP) CEILING MOUNTED STROBE; RATED 16 TO 33 AMP.

## VOLTAGE DROP CALCULATIONS

{(I) (D) (21.6)}/CM  
WHERE: I = CIRCUIT POWER LOAD 21.6 = CONSTANT  
D = CONDUCTOR ONE WAY DISTANCE CM = CROSS SECTION AREA OF WIRE (4110 FOR AWG#14)

NAC AV1  
{0.603 AMP} (700 FT) (21.64)}/4110 VOLTAGE DROP: 2.222 VOLTS AVAILABLE VOLTAGE: 21.777 VOLTS

THE CIRCUIT'S AVAILABLE VOLTAGE IS ABOVE THE MINIMUM LISTED VOLTAGE FOR THE APPLIANCES.

6 VOLTAGE DROP CALCULATIONS  
FA0.1 SCALE: NONE



CONSULTING FIRM

CONSULTING FIRM

CONSULTING A/E FIRM



PROFESSIONAL SEAL  
(IF REVISION, APPLIES ONLY TO REVISED WORK)

ISSUE (PROGRESS, ESTIMATE, BD, CONSTRUCTION, CONFORMED, REVISION, AS-BUILT)

RECORD DRAWINGS - AS-BUILTS  
05/24/2013

REVISION NUMBER DRAWN BY CHECKED BY APPROVED BY DATE REMARKS

A HYT LBNL 5/24/13 RECORD DRAWINGS - AS-BUILTS

79 OFFICE CONVERSION  
FIRE ALARM SYSTEM  
GENERAL NOTES, LEGEND, & DETAILS

UNIVERSITY OF CALIFORNIA  
LAWRENCE BERKELEY NATIONAL LABORATORY  
FACILITIES DIVISION

DRAWN BY: HYT  
CHECKED BY: HYT  
APPROVED BY: HYT  
CAD FILE PATH:  
SCALE: As Noted  
DRAWING NO.: 4B79E007A  
PROJECT NO.: FC1046  
DATE: 05/24/2013  
SHEET: FA0.1  
OF: 1